targets to modulate disease mechanisms of atherosclerosis and may stimulate further studies to establish a prediction tool for progression of coronary heart disease.

GW26-e1468

Association of serum sSema4D level with coronary atherosclerotic disease

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OBJECTIVES Recent studies showed that sema4D has significant role in atherosclerosis and thrombosis. Elevation in Sema4D level is considered to be a novel risk factor for thrombotic disease. Being a research highlight these years, there has been little real-world clinical studies on Sema4D so far.

METHODS 1. 158 consecutive inpatients from the department of cardiology in the 2nd affiliated hospital of Soochow University was included in this study. The sum consist of stable 53 cases with angina pectoris, 105 with Acute Coronary Syndrome. There were 59 subjects in the healthy control group.

2. Enzyme-linked immunosorbent assay was utilized to test the serum level of Sema4D.

3. All subjects underwent coronary angiography after admission, diameter method was used to quantify the extent of coronary arterial stenosis, which was then put into calculation with Gensini Score.

4. According to cutoff of sSema4D derived from receiver operator curve, patients were divided into high sSema4D group (n=95) and low sSema4D group (n=63). Follow-up of major adverse cardiovascular events each 3 months was carried out within one year after discharge. Survival analysis between both groups was performed using Kaplan-Meier Method.

RESULTS 1. Coronary atherosclerotic disease group had significantly higher level of serum sSema4D compared with control (9.23±2.64 vs 3.93±1.39ng/mL, $P<0.001$). Moreover, patients with acute coronary syndrome had elevated serum sSema4D level compared with those with stable coronary atherosclerotic disease(10.13±2.54 vs 7.46±1.80ng/mL, $P<0.001$).

2. Patients with Gensini score over 40(11.49±2.73ng/mL) showed significantly increased serum sSema4D level compare with those with Gensini score under 20(7.63±2.16ng/mL) or 20 through 40(9.53±1.97ng/mL).($P<0.05$)

3. Serum sSema4D was positively correlated with Gensini Score ($r=0.662$, $P<0.001$) according to linear correlation analysis

4. Multivariate logistic regression analysis revealed that serum sSema4D was an independent risk factor for coronary atherosclerotic disease(OR=7.18, 95% CI: 3.38～15.23, $P<0.001$) as well as for major adverse cardiovascular events(OR=3.178, 95% CI: 1.025～9.849, $P<0.05$).

5. In patients from coronary atherosclerotic disease group, subjects with increased level of sSema4D showed decreased major adverse cardiovascular events-free survival rate compared with those with relatively lower level of sSema4D(log-rank test $\chi 2=15.149$, $P<0.01$).

CONCLUSIONS 1. Serum sSema4D was increased in coronary atherosclerotic disease and even more elevated in acute coronary syndrome.

2. The positive correlation between sSema4D and Gensini score indicates that sSema4D level can reflect the severity of coronary arterial lesion.

3. sSema4D can be used to predict the prognosis of coronary atherosclerotic diseases it was found to be an independent risk factor for major adverse cardiovascular events.

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ADP-induced platelet-fibrin clot strength: prediction of major bleeding and dyspnea side effects in ticagrelor treated Chinese ACS patients

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OBJECTIVES Ticagrelor provides more potent platelet inhibition than clopidogrel, however, enhanced efficacy of ticagrelor increases the risk of bleeding and dyspnea side effects. This study sought to display the role of ADP-induced platelet-fibrin clot strength for the prediction of bleeding and dyspnea side effect in ticagrelor treated Chinese acute coronary syndrome (ACS) patients.

METHODS Consecutive Chinese-Han patients with ACS who received maintenance dose of ticagrelor (90 mg, bid) and aspirin (100mg, qd) were recruited from General Hospital of Chinese People's Liberation Army. After 5 days ticagrelor maintenance treatment, ADP-induced platelet-fibrin clot strength (MA_{ADP}) measured by thrombelastography (TEG) were recorded. Pre-specified cutoffs of MA_{ADP} with consensus for high on-treatment platelet reactivity (HTPR) and low on-treatment platelet reactivity (LTPR) to ADP associated with ischemia and bleeding events were applied for evaluation. Bleeding events according to TIMI criteria and ticagrelor related dyspnea side effect were recorded after a follow-up of 3 months.

RESULTS Overall, 532 ACS patients (Male: 72.56%, Age:60±11 years) under ticagrelor maintenance treatment were recruited. Antiplatelet responsiveness measured by TEG was available in 176 patients. After 5 days' ticagrelor maintenance treatment, the value of MA_{ADP} was (21.27±12.07)% on average (ranged from 4.8% to 72.9%). With the pre-specific cutoffs for HTPR (TEG-MA_{ADP}>47mm) and LTPR (TEG-MA_{ADP}<31mm), 7 patients (3.98%) were identified as HTPR and143 patients (81.25%) as LTPR. Among 89 patients who were followed up for 3 months, bleeding events occurred in 43 patients (48.31%), with major bleeding in 3 patients (3.37%), and minor bleeding in 40 patients (44.94%). All patients with major bleeding events were classified as LTPR. The distribution of patients with minor bleeding events was 3 (42.86%) in HTPR and 27 (18.88%) in LTPR, respectively. Ticagrelor related dyspnea side effect occurred in 22 patients (24.71%), and all of them were classified as LTPR.

CONCLUSIONS ADP-induced platelet-fibrin clot strength (MA_{ADP}) as measured by TEG could predict major bleeding and dyspnea side effects in ticagrelor treated ACS patients.

GW26-e1026

Treatment with enhanced external counterpulsation improves cardioankle vascular index in old patients with atherosclerotic cardiovascular diseases

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OBJECTIVES Enhanced external counterpulsation (EECP) therapy enhances coronary perfusion, lowers symptom episodes and improves quality of life in patients with atherosclerotic cardiovascular diseases (ASCVD). However, there is little understanding about the impact of EECP therapy on arteriosclerosis in this population. Our aim was to investigate the effects of EECP on arterial stiffness which was identified by a novel marker—cardioankle vascular index(CAVI), and evaluate what factors were cruel to influence the improvement of CAVI following EECP treatment in old patients with ASCVD.

METHODS One hundred and three old individuals(mean age:70.3 ±9.7 years) who were diagnosed with ASCVD enrolled consecutively in the study from Mar. 2014 to Oct. 2014. A prospective observational longitudinal study was conducted to investigate the changes of arterial wall stiffness assessed using CAVI after 35 sessions of 1-hr daily EECP treatment in these patients.

RESULTS Compared with baseline values, LVEF value increased and plasma concentrations of NT-proBNP, hs-CRP, and homocysteine significantly decreased at the end of 35th sessions of EECP treatment, respectively. After 17th session of EECP treatment, both left CAVI(CAVI-L) and right CAVI(CAVI-R) were lower than those at baseline, respectively(CAVI-L : 8.09±0.93 vs 8.67±0.96; CAVI-R: 8.17±1.16 vs 8.98±1.23; all $P<0.05$). After 35th session of EECP treatment, both CAVI-L and CAVI-R decreased significantly compared to baseline, respectively (CAVI-L : 7.45±0.87 vs 8.67±0.96; CAVI-R: 7.62±1.26 vs 8.98±1.23; all $P<0.001$). There was also significantly difference for CAVI values between 17th and 35th session of EECP treatment (CAVI-L : 7.45±0.87 vs 8.09±0.93; CAVI-R: 7.62±1.26 vs 8.17±1.16 ;all $P<0.05$). Subgroup analysis showed that old patients with multimorbidity factors≥4 had a higher value of CAVI than those with multimorbidity factors≤3, and the former group had more significant decreases in CAVI values following either 17th sessions or 35th sessions of EECP therapy when compared to the latter group, respectively ($p < 0.01$).

CONCLUSIONS Besides increasing LVEF, as well as lowering serum levels of NT-proBNP, Hs-CRP, homocysteine, EECP therapy improves arterial stiffness by reducing the CAVI values in old patients with ASCVD, especially in those with multimorbidity factors≥4. Multimorbidity factors are significantly associated with the degrees of alterations in CAVI parameter derived from EECP treatment. The study implies EECP treatment is beneficial for artery stiffness in old patients with ASCVD. The improvement of arteriosclerosis is coincident with cardiac function changes and inflammatory reactions control, providing further insight into the potential mechanisms of EECP-mediated amelioration in atherosclerosis.